

Amendments to the Claims

1. (Original) An apparatus for directing a gas from an upstream conduit through a vessel wall for cleaning surfaces within the vessel comprising:

a mounting flange for coupling the apparatus to the upstream conduit delivering the gas and having:

first and second faces;

an inboard surface bounding a central aperture;

an outboard perimeter; and

an array of bolt holes between the first and second faces;

a conduit extending downstream from the flange and having:

inner and outer walls along at least a portion of a length; and

a space between the inner and outer walls for carrying a cooling fluid;

a cooling fluid inlet; and

a cooling fluid outlet.

2. (Original) The apparatus of claim 1 wherein:

the space extends from an upstream end outside the vessel wall at least partially downstream within the wall.

3. (Original) The apparatus of claim 1 wherein:

the cooling fluid outlet is along the conduit; and

the cooling fluid inlet is along the flange.

4. (Original) The apparatus of claim 3 wherein:

the inner and outer walls each have a downstream rim; and

the cooling fluid outlet is between the inner and outer walls.

5. (Original) The apparatus of claim 1 wherein:

the inner wall is essentially formed by a first tubular piece extending from an upstream rim to a downstream rim and having interior and exterior surfaces, along an upstream portion,

the interior surface providing the flange inboard surface.

6. (Currently amended) The apparatus of claim 1 in combination with:
said upstream conduit coupled to the flange;
said vessel, being a furnace, having a furnace wall separating a furnace exterior from a furnace interior and having a wall aperture; and
a detonative source of said gas.
7. (Currently amended) The combination of claim 6 wherein:
the flange is upstream of an exterior surface of the furnace wall; ~~and~~
the conduit extends through the furnace wall to protrude downstream of an interior surface of the furnace wall; and
the cooling fluid outlet is within the furnace interior.
8. (Original) A soot blower nozzle comprising:
means for mounting the nozzle to an upstream soot blower gas conduit;
a surface for guiding gas from the soot blower gas conduit into the interior of the vessel;
and
means for cooling the nozzle.
9. (Original) A method for operating an apparatus for cleaning interior surfaces within a vessel having a vessel wall, the method comprising:
causing a combustion pulse in a combustion conduit;
directing combustion gases along the combustion conduit through the vessel wall to be ejected from an outlet of the combustion conduit; and
passing a cooling gas along a portion of the combustion conduit exposed to heat from the vessel.
10. (Original) The method of claim 9 wherein:
said passing is essentially continuous between a plurality of said combustion pulses.

11. (Original) The method of claim 9 wherein:
said passing comprises passing the cooling fluid along a path at least partially surrounding a portion of a combustion gas flowpath.
12. (Original) The method of claim 9 wherein:
said passing comprises passing the cooling fluid along a path into the vessel interior.
13. (Previously presented) The method of claim 9 wherein:
the passing is along an open flowpath discharging into the vessel interior.
14. (Previously presented) The method of claim 9 wherein:
the passing comprises passing downstream between inner and outer walls of the combustion conduit.
15. (Previously presented) The method of claim 14 wherein:
the passing is along an open flowpath discharging into the vessel interior.
16. (Previously presented) The combination of claim 7 wherein:
the cooling fluid outlet is open to the vessel interior.
17. (Previously presented) The combination of claim 7 wherein:
the cooling fluid outlet is between the inner and outer walls.
18. (Previously presented) The combination of claim 7 wherein:
the cooling fluid is a cooling gas.
19. (Previously presented) The combination of claim 18 wherein:
the cooling fluid outlet is open to the vessel interior.
20. (Previously presented) The combination of claim 19 wherein:
the cooling fluid outlet is between the inner and outer walls.

21. (Previously presented) The combination of claim 19 wherein:
the space extends from an upstream end outside the vessel wall at least partially
downstream within the wall.